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may be excepted from this direction. Nature, which made man and these animals, equally necessary to each other's subsistence, has kindly prevented any inconvenience from their living together. On the contrary, to repay the husbandman for affording a shelter to these useful and helpless animals, nature has done more. She has endowed their dung with a power of destroying the effects of marsh exhalations, and of preventing fevers. The miserable cottagers in Europe who live under the same roof, and in some instances in the same room with their cattle, are always healthy. In Philadelphia, fevers are less known in the neighbourhood of livery stables, than in any other part of the city. I could mention a family that has lived near thirty years near a livery stable in a sickly part of the city, that has never known a fever but from the measles or small-pox.

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## N° XXVI.

*An Account of the late Dr. HUGH MARTIN's Cancer Powder, with brief Observations on Cancers. By BENJAMIN RUSH, M. D. &c. &c.*

Read February  
3, 1786.

A FEW years ago a certain Dr. Hugh Martin, a surgeon of one of the Pennsylvania regiments stationed at fort Pitt, during the latter part of the late war, came to this city, and advertised to cure cancers with a medicine which he said he had discovered in the woods, in the neighbourhood of the garrison. As Dr. Martin had once been a pupil of mine, I took the liberty of waiting upon him, and asked him some questions respecting his discovery. His answers were calculated to make me believe, that his medicine was of a vegetable nature, and that it was originally an Indian remedy. He shewed

shewed me some of the medicine, which appeared to be the powder of a well dried root of some kind. Anxious to see the success of this medicine in cancerous sores, I prevailed upon the doctor to admit me to see him apply it in two or three cases. I observed in some instances, he applied a powder to the parts affected, and in others only touched them with a feather dipped in a liquid which had a white sediment, and which he made me believe was the vegetable root diffused in water. It gave me great pleasure to witness the efficacy of the doctor's applications. In several cancerous ulcers, the cures he performed were complete. Where the cancers were much connected with the lymphatic system, or accompanied with a scrophulous habit of body, his medicine always failed, and in some instances did evident mischief.

Anxious to discover a medicine that promised relief in even a few cases of cancers, and supposing that all the caustic vegetables were nearly alike, I applied the *phytolacca* or poke root, the *stramonium*, the *arum*, and one or two others, to foul ulcers, in hopes of seeing the same effects from them which I had seen from Dr. Martin's powder, but in these I was disappointed. They gave some pain, but performed no cures. At length I was furnished by a gentleman from fort Pitt with a powder which I had no doubt, from a variety of circumstances, was of the same kind as that used by Dr. Martin. I applied it to a fungous ulcer, but without producing the degrees of pain, inflammation, or discharge, which I had been accustomed to see from the application of Dr. Martin's powder. After this, I should have suspected that the powder was not a *simple* root, had not the doctor continued upon all occasions to assure me that it was wholly a vegetable preparation.

In the beginning of the year 1784 the doctor died, and it was generally believed that his medicine had died with him. A few weeks after his death, I procured from Mr. Thomas Lieper, one of his administrators, a few ounces of

the doctor's powder, partly with a view of applying it to a cancerous sore which then offered, and partly with a view of examining it more minutely than I had been able to do during the doctor's life. Upon throwing the powder, which was of a brown colour, upon a piece of white paper, I perceived distinctly a number of white particles scattered through it. I suspected at first that they were corrosive sublimate, but the usual tests of that metallic salt soon convinced me that I was mistaken. Recollecting that arsenic was the basis of most of the celebrated cancer powders that have been used in the world, I had recourse to the tests for detecting it. Upon sprinkling a small quantity of the powder upon some coals of fire, it emitted the garlic smell so perceptibly as to be known by several persons whom I called into the room where I made the experiment, and who knew nothing of the object of my enquiries. After this with some difficulty I picked out about three or four grains of the white powder, and bound them between two pieces of copper, which I threw into the fire. After the copper pieces became red hot, I took them out of the fire, and when they had cooled, discovered an evident whiteness imparted to both of them. One of the pieces afterwards looked like dull silver. These two tests have generally been thought sufficient to distinguish the presence of arsenic in any bodies, but I made use of a third, which has lately been communicated to the world by Mr. Bergman, and which is supposed to be in all cases infallible.

I infused a small quantity of the powder in a solution of a vegetable alkali in water for a few hours, and then poured it upon a solution of blue vitriol in water. The colour of the vitriol was immediately changed to a beautiful green, and afterwards precipitated.

I shall close this paper with a few remarks upon this powder, and upon the cure of cancers and foul ulcers of all kinds.

The

1. The use of caustics in cancers and foul ulcers is very ancient, and universal. But I believe *arsenic* to be the most efficacious of any that has ever been used. It is the basis of Plunkett's and probably of Guy's well known cancer powders. The great art of applying it successfully, is to dilute and mix it in such a manner as to mitigate the violence of its action. Dr. Martin's composition was happily calculated for this purpose. It gave less pain than the common or lunar caustic. It excited a moderate inflammation, which separated the morbid from the sound parts, and promoted a plentiful afflux of humours to the fore during its application. It seldom produced an eschar; hence it insinuated itself into the deepest recesses of the cancers, and frequently separated these fibres in an unbroken state which are generally called the roots of the cancer. Upon this account, I think, in an ulcerated cancer it is to be preferred to the knife. It has no action upon the sound skin. This Dr. Hall proved by confining a small quantity of it upon his arm for many hours. In those cases where Dr. Martin used it to extract cancerous or schirrous tumors that were not ulcerated, I have reason to believe that he always broke the skin with Spanish flies.

2. The arsenic used by the doctor was the pure white arsenic. I should suppose from the examination I made of the powder with the eye, that the proportion of arsenic to the vegetable powder, could not be more than  $\frac{1}{40}$  part of the whole compound. I have reason to think that the doctor employed different vegetable substances at different times. The vegetable matter with which the arsenic was combined in the powder which I used in my experiments, was probably nothing more than the powder of the root and berries of the solanum lethale, or deadly nightshade. As the principal, and perhaps the only design of the vegetable addition was to blunt the activity of the arsenic, I should suppose that the same proportion

tion of common wheat flour as the doctor used of his caustic vegetables, would answer nearly the same purpose. In those cases where the doctor applied a feather dipped in a liquid to the fore of his patient, I have no doubt but his phial contained nothing but a weak solution of arsenic in water. This is no new method of applying arsenic to foul ulcers. Dr. Way of Wilmington, has spoken in the highest terms to me of a wash for foulnesses on the skin, as well as old ulcers, prepared by boiling an ounce of white arsenic in two quarts of water to three pints, and applying it once or twice a day.

3. I mentioned formerly that Dr. Martin was often unsuccessful in the application of his powder. This was occasioned by his using it indiscriminately in *all* cases. In schirrous and cancerous tumours, the knife should always be preferred to the caustic. In cancerous ulcers attended with a scrophulous or a bad habit of body, such particularly as have their seat in the neck, in the breasts of females, and in the axillary glands, it can only protract the patient's misery. Most of the cancerous sores cured by Dr. Martin were seated on the nose, or cheeks, or upon the surface or extremities of the body. It remains yet to discover a cure for cancers that taint the fluids, or infect the whole lymphatic system. This cure I apprehend must be sought for in diet, or in the long use of some internal medicine.

To pronounce a disease incurable, is often to render it so. The intermitting fever, if left to itself, would probably prove frequently, and perhaps more speedily fatal than cancers. And as cancerous tumours and sores are often neglected, or treated improperly by injudicious people, from an apprehension that they are incurable, (to which the frequent advice of physicians "to let them alone," has no doubt contributed) perhaps the introduction of arsenic into regular practice as a remedy for cancers, may invite to a more early application to physicians, and thereby prevent

vent the deplorable cases that have been mentioned, which are often rendered so by delay or unskilful management.

4. It is not in cancerous sores only that Dr. Martin's powder has been found to do service. In sores of all kinds, and from a variety of causes, where they have been attended with fungous flesh or callous edges, I have used the doctor's powder with advantage.

I flatter myself that I shall be excused in giving this detail of a *quack* medicine, when the society reflect that it was from the inventions and temerity of quacks, that physicians have derived some of their most active and useful medicines.

## N° XXVII.

Illustriſſimæ ac celeberrimæ Societati Scientiarum quæ est Philadelphix.

S. P. D.

CHRISTIANUS MAYER Ser<sup>mi</sup> Electoris Palatini  
Astronomus.

**S**CRIBENDI occasionem a Cl. D. Ferdinando Farmer oblatam eo minus negligendam putavi quod hac ratione aliquantum respondeam honori, quo me illustriſſima societas affecit, cum me in album suorum sociorum ad scripsit. Ex libro Philadelphix impresso & ad me tribus circiter abhinc annis transmissio intellexi non sine magno animi mei sensu, etiam Philadelphix excoli astronomiam. Libro illo scriptisque meis astronomicis infelici incendio abhinc biennio consumptis, de novis meis quibusdam in cœlo inventis ad societatem illustriſſimam aliquid scribendum esse, duxi. Speculam novam ad omnes usus accommoda-  
tam